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Thermococcus litoralis DNA polymerase, (exo-) Pyrococcus furiosus DNA polymerase, and (exo-) Pyrococcus GB-D DNA polymerase.

46. A kit according to Claim 45, wherein said second DNA polymerase is Thermus aquaticus DNA polymerase.

47. A kit according to Claim 43, wherein the second DNA polymerase is selected from the group consisting of Thermus aquaticus DNA polymerase, (exo-) Thermococcus litoralis DNA polymerase, (exo-) Pyrococcus furiosus DNA polymerase, and (exo-) Pyrococcus GB-D DNA polymerase.

48. A kit according to Claim 44, wherein said second DNA polymerase is Thermus aquaticus DNA polymerase.

49. A kit according to Claim 33, said kit further comprising DNA primers.

50. A kit according to Claim 34, said kit further comprising DNA primers.

51. A kit according to Claim 48, said kit further comprising DNA primers.--

REMARKS

In order to maintain a clear line of demarcation between the claims in this application and the claims in copending application Serial No. 08/164,290, which formed the basis for a provisional double patenting rejection in the outstanding Office Action, and in order to complete the prosecution of subject matter originally claimed in copending parent application Serial No. 197,791, now U.S. Patent No. 5,556,772 (copy enclosed), the claims have been amended to recite the broader genus of kits and methods claimed in the Amendment Under 37 C.F.R. § 1.115 filed on March 1, 1996 in parent application Serial No. 197,791. Applicants attempt in this application on May 17,

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1996 to pursue further ex parte prosecution of subject matter related to claims 1-8 was rendered unnecessary by the unexpected reopening of ex parte prosecution by the PTO in application Serial No. 08/164,290 on August 5, 1996. Upon receipt by applicants of an oral or written indication of allowable subject matter in this application, applicants will promptly file an appropriate terminal disclaimer in order to obviate any potential obviousness-type double patenting rejection based on U.S. Patent No. 5,556,772.

Without acquiescing in the propriety of any of the rejections advanced in the parent application, Applicants there canceled certain claims and amended other claims in a sincere effort to advance the prosecution of the application. Applicants there reserved the right to pursue the unclaimed subject matter in one or more continuing applications and do so now. Moreover, Applicants there reserved the right, as they do in this application, to rely on the understanding of persons of ordinary skill in the art, as enlightened by the disclosure of the instant application regarding the function and purpose of the invention and its components, and the prior art, in construing the newly presented claims. Applicants also note that the proposed amendments have previously been offered in response to formal rejections under 35 U.S.C. § 112 in the parent application and do not, therefore, narrow in any way the scope of equivalents to which the claims will be entitled under the doctrine of equivalents.

The Examiner had objected to the Abstract of the disclosure in the parent application because the Abstract contained more than one paragraph. The objection is

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avoided by the amendment to the specification deleting both paragraph indentations from the Abstract.

Canceled claims 1-8 in this application as well as claims 17-32 in the parent application had been rejected based in whole or in part on the Barnes patent. Barnes, however, is not available as a reference under 35 U.S.C. § 102(e) against the pending claims. Applicants submitted in the parent application and resubmit herewith a declaration under 37 C.F.R. § 1.131 by Joseph A. Sorge and Rebecca L. Mullinax. The 1.131 declaration shows that the claimed invention was reduced to practice in the United States prior to the effective date of the Barnes reference. Exhibit A of the declaration is a notebook page describing the purpose of an experiment in which mismatches produced by a DNA polymerase that lacks 3'-5' exonuclease activity, e.g., Taq DNA polymerase, may be removed by a DNA polymerase that possesses 3'-5' exonuclease activity, e.g., Pfu DNA polymerase. Exhibit B describes the results of PCR experiments in which superior results are achieved with a combination Pfu DNA polymerase and Taq DNA polymerase.

Additionally, Applicants note that Barnes only purports to teach compositions of DNA polymerases with 3'-5' exonuclease activity and DNA polymerases lacking 3'-5'exonuclease activity, where the DNA polymerases are in a specific ratio to one another and where the amplification product desired is exceptionally long. Applicants invention, on the other hand, is not subject to such limitations. As described, *inter alia*, in the examples section of the specification of the present application, e.g. Table 6, Applicants have demonstrated superior amplification results in general.

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As noted during prosecution of the parent application, the fact that the instant claims are generic to the species claimed in the Barnes patent does not mean that the claims are directed to the same patentable invention, thereby requiring an interference. By way of example, claim 19 of U.S. patent No. 4,376,110 to David et al. (copy enclosed) is generic to claim 1 of U.S. patent No. 5,422,239 to Wands et al. (copy enclosed). Wands provoked an interference with the David patent (see excerpt from Wands file history enclosed) but was not allowed to remain in the contest. (Id.) Instead, both the David and Wands patents were issued. The relationship between the instant claims and the claims of the Barnes patent appears to be precisely analogous to the relationship between the claims of David and Wands discussed above where no interference was proper.

In view of the foregoing amendments and remarks, the application is believed to be in good and proper form for allowance.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is encouraged to call Mr. Charles Lipsey at (202) 408-4019. It is believed that such an interview could respond to any further questions that the Examiner may have in connection with the application.

If there are any fees due in connection with the filing of this paper, please charge the fees to our Deposit Account No. 06-0916. If a fee is required for an extension of

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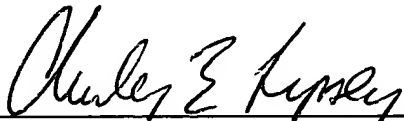
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time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account 06-0916.

Respectfully submitted,

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Dated: November 29, 1996


Charles E. Lipsey, Reg. No. 28,165

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